

What is claimed is:

1. A data preprocessor for preprocessing input electronic commerce data for a non-linear model used to control an electronic commerce system, wherein the input electronic commerce data include one or more outlier values, comprising:

an input buffer which is operable to receive and store the input electronic commerce data;

a data filter which is operable to detect and remove said one or more outlier values, thereby generating corrected input electronic commerce data; and

an output device for outputting the corrected input electronic commerce data, said corrected input electronic commerce data comprising the input electronic commerce data to the non-linear model.

2. The data preprocessor of claim 1, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, said model parameters capable of being trained;

wherein the input electronic commerce data comprise training electronic commerce data, wherein said corrected input electronic commerce data comprise corrected training electronic commerce data including corrected target input electronic commerce data and corrected target output electronic commerce data; and

wherein the non-linear model is operable to be trained according to a predetermined training algorithm applied to said corrected target input electronic commerce data and said corrected target output electronic commerce data to develop model parameter values such that said non-linear model has stored therein a representation of the electronic commerce system that generated the target output electronic commerce data in response to the corrected target input electronic commerce data.

3. The data preprocessor of claim 1, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, wherein said model parameters of said non-linear model have been trained to represent said system;

wherein the input electronic commerce data comprise run-time electronic commerce data, and wherein said corrected input electronic commerce data comprise corrected run-time electronic commerce data; and

wherein the non-linear model is operable to receive said corrected run-time electronic commerce data and generate run-time output electronic commerce data, wherein said run-time output electronic commerce data comprise one or both of control parameters for said electronic commerce system and predictive output information for said electronic commerce system.

4. The data preprocessor of claim 3, wherein said control parameters are usable to determine control inputs to said system for run-time operation of said system.

5. The data preprocessor of claim 1, wherein the data filter is further operable to replace said one or more outlier values with replacement values, wherein said corrected input includes said replacement values.

6. The data preprocessor of claim 5, wherein the data filter is operable to replace said one or more outlier values using one or more of clipping, interpolation, extrapolation, spline fit, and sample/hold of a last prior value.

7. The data preprocessor of claim 1, further comprising:
a graphical user interface (GUI) which is operable to receive user input specifying one or more data filtering operations to be performed on said input electronic commerce data, wherein said one or more data filtering operations operate to remove and/or replace said one or more outlier values.

8. The data preprocessor of claim 7, wherein said GUI is further operable to display said input electronic commerce data prior to and after performing said filtering operations on said input electronic commerce data.

9. The data preprocessor of claim 7, wherein said GUI is further operable to

receive user input specifying a portion of said input electronic commerce data for said data filtering operations.

10. The data preprocessor of claim 1, wherein the input electronic commerce
5 data comprise a plurality of variables, each of the variables comprising an input variable with an associated set of electronic commerce data wherein each of said variables comprises an input to said input buffer; and

wherein each of at least a subset of said variables comprises a corresponding one of the inputs to the non-linear model.

11. A method for preprocessing input electronic commerce data prior to input to
a non-linear model used to control an electronic commerce system, wherein said non-linear
model comprises multiple inputs, each of the inputs associated with a portion of the input
electronic commerce data, wherein the input electronic commerce data include one or more
15 outlier values, the method comprising:

receiving and storing the input electronic commerce data;

analyzing said input electronic commerce data to determine said one or more outlier
values;

removing said one or more outlier values, thereby generating corrected input
20 electronic commerce data; and

outputting the corrected electronic commerce data, said corrected electronic
commerce data comprising the input electronic commerce data to the non-linear model.

12. The method of claim 11, wherein the non-linear model includes a set of
25 model parameters defining a representation of the electronic commerce system, said model parameters capable of being trained; and

wherein the input electronic commerce data comprise training electronic commerce
data including target input electronic commerce data and target output electronic commerce
data, wherein said corrected electronic commerce data comprise corrected training
30 electronic commerce data including corrected target input electronic commerce data and
corrected target output electronic commerce data;

the method further comprising:

training the non-linear model according to a predetermined training algorithm applied to said corrected target input electronic commerce data and said corrected target output electronic commerce data to develop model parameter values such that said non-linear model has stored therein a representation of the electronic commerce system that generated the target output electronic commerce data in response to the target input electronic commerce data.

13. The method of claim 11, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, wherein said model parameters of said non-linear model have been trained to represent said system; and wherein the input electronic commerce data comprise run-time electronic commerce data, and wherein said corrected electronic commerce data comprise corrected run-time electronic commerce data;

the method further comprising:

inputting said run-time electronic commerce data into the non-linear model to generate run-time output electronic commerce data, wherein said run-time output electronic commerce data comprise one or both of control parameters for said system and predictive output information for said system.

14. The method of claim 13, wherein said control parameters are usable to determine control inputs to said system for run-time operation of said system.

15. The method of claim 11, further comprising:

replacing said one or more outlier values with replacement values, wherein said corrected input includes said replacement values.

16. The method of claim 15, wherein said replacing said one or more outlier values is performed using one or more of clipping, interpolation, extrapolation, spline fit, and sample/hold of a last prior value.

17. The method of claim 11, further comprising:

receiving user input specifying one or more data filtering operations to be performed on said input electronic commerce data, wherein said analyzing and said removing said one or more outlier values comprises performing said one or more data filtering operations on the input electronic commerce data.

18. The method of claim 11, further comprising:

displaying said input electronic commerce data prior to and after performing said filtering operations on said input electronic commerce data.

19. The method of claim 11, further comprising:

receiving user input specifying a portion of said input electronic commerce data for said data filtering operations.

20. The method of claim 11, wherein the input electronic commerce data comprise a plurality of variables, each of the variables comprising an input variable with an associated set of electronic commerce data wherein each of said variables comprises an input to said input buffer; and

wherein each of at least a subset of said variables comprises a corresponding one of the inputs to the non-linear model.

21. A system for preprocessing input electronic commerce data for a non-linear model used to control an electronic commerce system, wherein said non-linear model comprises multiple inputs, each of the inputs associated with a portion of the input electronic commerce data, wherein the input electronic commerce data include one or more outlier values, comprising:

means for receiving and storing the input electronic commerce data;

means for analyzing said input electronic commerce data to determine said one or more outlier values;

means for removing said one or more outlier values, thereby generating corrected input electronic commerce data; and

means for outputting the corrected electronic commerce data, said corrected electronic commerce data comprising the input electronic commerce data to the non-linear model.

5 22. The system of claim 21, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, said model parameters capable of being trained; and

 wherein the input electronic commerce data comprise training electronic commerce data including target input electronic commerce data and target output electronic commerce data, wherein said corrected electronic commerce data comprise corrected training electronic commerce data including corrected target input electronic commerce data and corrected target output electronic commerce data;

 the system further comprising:

 means for training the non-linear model according to a predetermined training algorithm applied to said corrected target input electronic commerce data and said corrected target output electronic commerce data to develop model parameter values such that said non-linear model has stored therein a representation of the electronic commerce system that generated the target output electronic commerce data in response to the target input electronic commerce data.

20 23. The system of claim 21, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, wherein said model parameters of said non-linear model have been trained to represent said electronic commerce system; and

25 wherein the input electronic commerce data comprise run-time electronic commerce data, and wherein said corrected electronic commerce data comprise corrected run-time electronic commerce data;

 the system further comprising:

30 means for inputting said run-time electronic commerce data into the non-linear model to generate run-time output electronic commerce data, wherein said run-time output electronic commerce data comprise one or both of control parameters for said

electronic commerce system and predictive output information for said electronic commerce system.

24. The system of claim 23, wherein said control parameters are usable to
5 determine control inputs to said electronic commerce system for run-time operation of said electronic commerce system.

25. The system of claim 21, further comprising:
means for replacing said one or more outlier values with replacement values,
10 wherein said corrected input includes said replacement values.

26. The system of claim 25, wherein said replacing said one or more outlier
values is performed using one or more of clipping, interpolation, extrapolation, spline fit,
and sample/hold of a last prior value.

27. The system of claim 21, further comprising:
means for receiving user input specifying one or more data filtering operations to be
performed on said input electronic commerce data, wherein said analyzing and said
removing said one or more outlier values comprises performing said one or more data
20 filtering operations on the input electronic commerce data.

28. The system of claim 21, further comprising:
means for displaying said input electronic commerce data prior to and after
performing said filtering operations on said input electronic commerce data.

29. The system of claim 21, further comprising:
means for receiving user input specifying a portion of said input electronic
commerce data for said data filtering operations.

30. The system of claim 21, wherein the input electronic commerce data
comprise a plurality of variables, each of the variables comprising an input variable with an

associated set of electronic commerce data wherein each of said variables comprises an input to said input buffer; and

wherein each of at least a subset of said variables comprises a corresponding one of the inputs to the non-linear model.

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31. A carrier medium which stores program instructions for preprocessing input electronic commerce data prior to input to a non-linear model used to control an electronic commerce system, wherein said non-linear model comprises multiple inputs, each of the inputs associated with a portion of the input electronic commerce data, wherein the input electronic commerce data comprise one or more outlier values, wherein said program instructions are executable to:

receive and store the input electronic commerce data;

analyze said input electronic commerce data to determine said one or more outlier values;

remove said one or more outlier values, thereby generating corrected input electronic commerce data; and

output the corrected electronic commerce data, said corrected electronic commerce data comprising the input electronic commerce data to the non-linear model.

32. The carrier medium of claim 31, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, said model parameters capable of being trained; and

wherein the input electronic commerce data comprise training electronic commerce data including target input electronic commerce data and target output electronic commerce data, wherein said corrected electronic commerce data comprise corrected training electronic commerce data including corrected target input electronic commerce data and corrected target output electronic commerce data;

wherein said program instructions are further executable to:

train the non-linear model according to a predetermined training algorithm applied to said corrected target input electronic commerce data and said corrected target output electronic commerce data to develop model parameter values such that said non-

linear model has stored therein a representation of the electronic commerce system that generated the target output electronic commerce data in response to the target input electronic commerce data.

5 33. The carrier medium of claim 31, wherein the non-linear model includes a set of model parameters defining a representation of the electronic commerce system, wherein said model parameters of said non-linear model have been trained to represent said electronic commerce system; and

 wherein the input electronic commerce data comprise run-time electronic commerce
10 data, and wherein said corrected electronic commerce data comprise corrected run-time electronic commerce data;

 wherein said program instructions are further executable to:

 input said run-time electronic commerce data into the non-linear model to
generate run-time output electronic commerce data, wherein said run-time output electronic
15 commerce data comprise one or both of control parameters for said system and predictive output information for said system.

 34. The carrier medium of claim 33, wherein said control parameters are usable
to determine control inputs to said system for run-time operation of said system.

 35. The carrier medium of claim 31, wherein said program instructions are
further executable to:

 replace said one or more outlier values with replacement values, wherein said
corrected input includes said replacement values.

 36. The carrier medium of claim 31, wherein said replacing said one or more
outlier values is performed using one or more of clipping, interpolation, extrapolation, spline
fit, and sample/hold of a last prior value.

 37. The carrier medium of claim 31, wherein said program instructions are
further executable to:

receive user input specifying one or more data filtering operations to be performed on said input electronic commerce data, wherein said analyzing and said removing said one or more outlier values comprises performing said one or more data filtering operations on the input electronic commerce data.

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38. The carrier medium of claim 31, wherein said program instructions are further executable to:

display said input electronic commerce data prior to and after performing said filtering operations on said input electronic commerce data.

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39. The carrier medium of claim 31, wherein said program instructions are further executable to:

receive user input specifying a portion of said input electronic commerce data for said data filtering operations.

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40. The carrier medium of claim 39, wherein the input electronic commerce data comprise a plurality of variables, each of the variables comprising an input variable with an associated set of electronic commerce data wherein each of said variables comprises an input to said input buffer; and

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wherein each of at least a subset of said variables comprises a corresponding one of the inputs to the non-linear model.

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